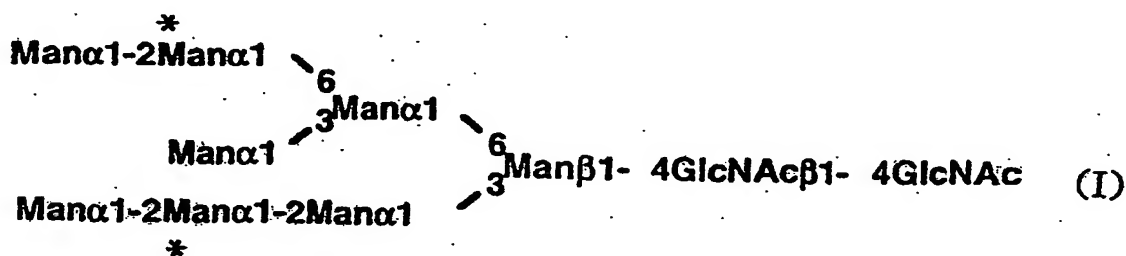


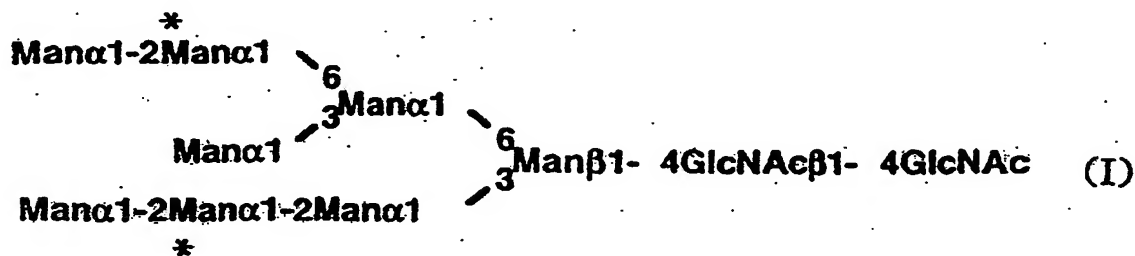
WHAT IS CLAIMED IS:

1. A yeast mutant having mutation traits of och1 mutation, mnn1 mutation, and mnn4 mutation and at least four auxotrophic mutation traits and capable of producing a glycoprotein containing an oligosaccharide represented by formula (I):



wherein Man represents mannose, GlcNAc represents N-acetylglucosamine, and \* represents a site capable of being phosphorylated, as an Asparagine-linked sugar chain.

2. A yeast mutant, having mutation traits of och1 mutation ( $\Delta\text{och1}$ ) in which OCH1 gene is disrupted, mnn1 mutation ( $\Delta\text{mnn1}$ ) in which MNN1 gene is disrupted, and mnn4 mutation ( $\Delta\text{mnn4}$ ) in which MNN4 gene is disrupted and at least one auxotrophic mutation trait without final introduction of genes complementing an auxotrophic property, and capable of producing a glycoprotein containing an oligosaccharide represented by formula (I):



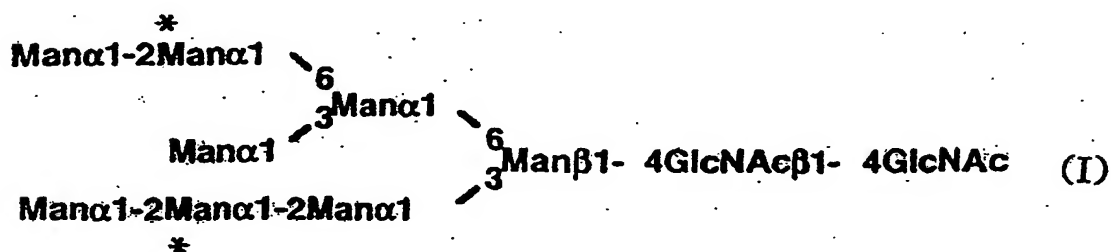
wherein Man represents mannose, GlcNAc represents N-acetylglucosamine, and \* represents a site capable of being phosphorylated, as an Asparagine-linked sugar chain.



8. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to any one of claims 1 to 6 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide represented by formula (I):



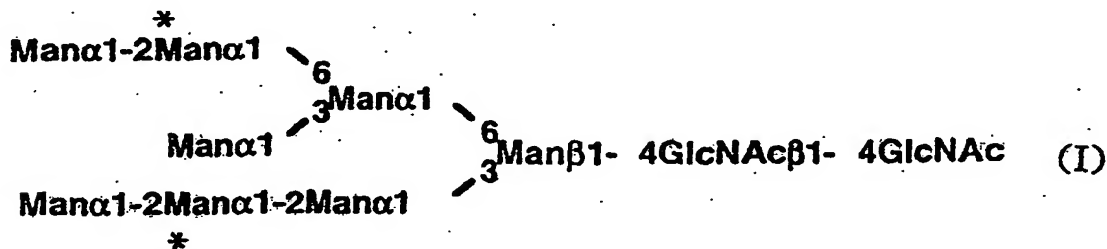
wherein Man represents mannose, GlcNAc represents N-acetylglucosamine, and \* represents a site capable of being phosphorylated, as an Asparagine-linked sugar chain, in the cultured product; and

collecting the glycoprotein from the cultured product.

9. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to any one of claims 1 to 6, which has been transformed with a recombinant plasmid containing a gene coding for a mammalian-derived Asparagine-linked glycoprotein in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide represented by formula (I):



wherein Man represents mannose, GlcNAc represents N-acetylglucosamine, and \* represents a site capable of being

phosphorylated, as an Asparagine-linked sugar chain, in the cultured product; and

collecting the glycoprotein from the cultured product.

10. A yeast mutant in which at least two genes associated with biosynthesis of a mammalian type sugar chain are introduced into a yeast mutant having mutation traits of och1 mutation, mnn1 mutation, and mnn4 mutation.

11. A yeast mutant in which at least one gene associated with biosynthesis of a mammalian type sugar chain is introduced into the yeast mutant according to any one of claims 1 to 6.

12. A process for producing an oligosaccharide, comprising the steps of:

culturing the yeast mutant according to claim 10 or 11 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product;

collecting the glycoprotein from the cultured product; and

recovering the oligosaccharide from the collected glycoprotein.

13. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to claim 10 or 11 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product; and

collecting the glycoprotein from the cultured product.

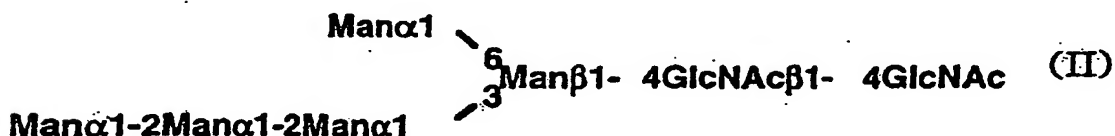
14. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to claim 10 or 11, which has been transformed with a recombinant plasmid containing a gene coding for a mammalian-derived Asparagine-linked glycoprotein, in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product; and

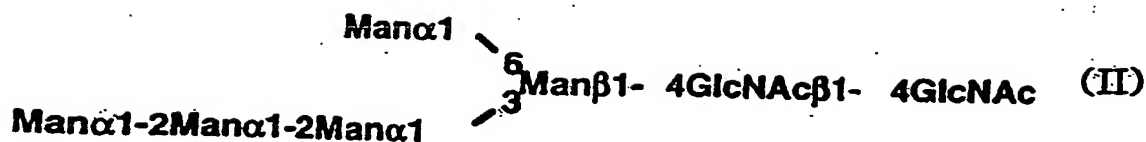
collecting the glycoprotein from the cultured product.

15. A yeast mutant having mutation traits of och1 mutation, mnn1 mutation, mnn4 mutation, and alg3 mutation and at least five auxotrophic mutation traits, and capable of producing a glycoprotein containing an oligosaccharide represented by formula (II):



wherein Man represents mannose and GlcNAc represents N-acetylglucosamine, as an Asparagine-linked sugar chain.

16. A yeast mutant, having mutation traits of och1 mutation ( $\Delta\text{och1}$ ) in which OCH1 gene is disrupted, mnn1 mutation ( $\Delta\text{mnn1}$ ) in which MNN1 gene is disrupted, mnn4 mutation ( $\Delta\text{mnn4}$ ) in which MNN4 gene is disrupted, and alg3 mutation ( $\Delta\text{alg3}$ ) in which ALG3 gene is disrupted, and at least one auxotrophic mutation trait without final introduction of genes complementing an auxotrophic property, and capable of producing a glycoprotein containing an oligosaccharide represented by formula (II):



wherein Man represents mannose and GlcNAc represents N-acetylglucosamine, as an Asparagine-linked sugar chain.

17. The yeast mutant according to claim 15 or 16, wherein the auxotrophic mutation trait is selected from ura3 mutation, his3 mutation, leu2 mutation, ade2 mutation, trp1 mutation, and can1 mutation.

18. The yeast mutant according to claim 17, which is yeast belonging to genus *Saccharomyces*.

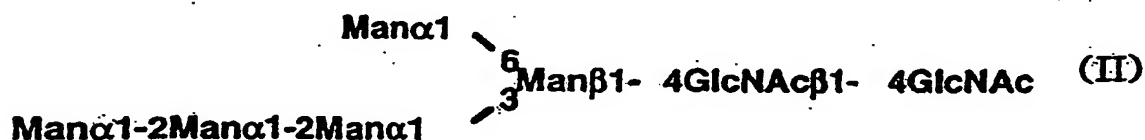
19. The yeast mutant according to claim 18, which is yeast belonging to *Saccharomyces cerevisiae*.

20. The yeast mutant according to claim 19, which is *Saccharomyces cerevisiae* YS134-4A strain.

21. A process for producing an oligosaccharide, comprising the steps of:

culturing the yeast mutant according to any one of claims 15 to 20 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide represented by formula (II):



wherein Man represents mannose and GlcNAc represents N-acetylglucosamine, as an Asparagine-linked sugar chain, in

the cultured product;

collecting the glycoprotein from the cultured product;

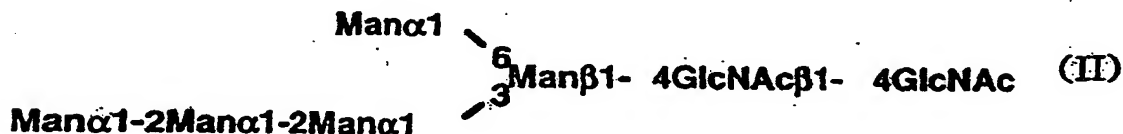
and

recovering the oligosaccharide from the collected glycoprotein.

22. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to any one of claims 15 to 20 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide represented by formula (II):



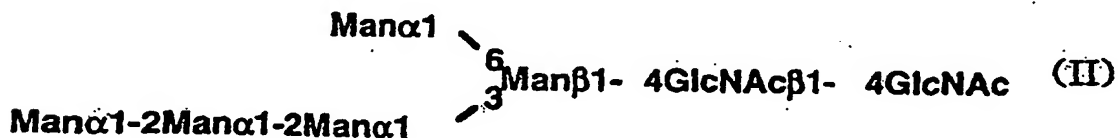
wherein Man represents mannose and GlcNAc represents N-acetylglucosamine, as an Asparagine-linked sugar chain, in the cultured product; and

collecting the glycoprotein from the cultured product.

23. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to any one of claims 15 to 20, that has been transformed with a recombinant plasmid containing a gene coding for a mammalian-derived Asparagine-linked glycoprotein, in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide represented by formula (II):



wherein Man represents mannose and GlcNAc represents N-acetylglucosamine, as an Asparagine-linked sugar chain, in the cultured product; and

collecting the glycoprotein from the cultured product.

24. A yeast mutant in which at least two genes associated with biosynthesis of a mammalian type sugar chain are introduced into a yeast mutant having mutation traits of och1 mutation, mnn1 mutation, mnn4 mutation, and alg3 mutation.

25. A yeast mutant in which at least one gene associated with biosynthesis of a mammalian type sugar chain is introduced into the yeast mutant according to any one of claims 15 to 20.

26. A process for producing an oligosaccharide, comprising the steps of:

culturing the yeast mutant according to claim 24 or 25 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product;

collecting the glycoprotein from the cultured product; and

recovering the oligosaccharide from the collected glycoprotein.

27. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to claim 24 or 25 in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product; and



collecting the glycoprotein from the cultured product.

28. A process for producing a glycoprotein, comprising the steps of:

culturing the yeast mutant according to claim 24 or 25, which has been transformed with a recombinant plasmid containing a gene coding for a mammalian-derived Asparagine-linked glycoprotein, in a medium;

producing and accumulating a glycoprotein containing an oligosaccharide as an Asparagine-linked sugar chain in the cultured product; and

collecting the glycoprotein from the cultured product.

29. A yeast strain, to which  $\alpha$ -mannosidase II gene has been introduced, and which has  $\alpha$ -mannosidase II activity.

30. A process for producing  $\alpha$ -mannosidase II, comprising the steps of:

culturing the yeast strain according to claim 29 in a medium; and

collecting  $\alpha$ -mannosidase II produced and accumulated in the cultured product..